

# Type and Other Cephalopods in the Collection of the Department of Invertebrate Zoology, California Academy of Sciences

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THE COLLECTION OF PRESERVED INVERTEBRATES formerly housed in the Natural History Museum, Stanford University, Stanford, California, contained about 300 lots of cephalopods. These were left at Stanford when the main collection of invertebrates was transferred to the California Academy of Sciences Department of Invertebrate Zoology, San Francisco, California, in 1963; they were moved to the Academy early in 1971.

This collection dates back to before the turn of the century and contains specimens collected by such well-known zoologists as David Starr Jordan, John O. Snyder, Albert W. C. T. Herre, Edwin C. Starks, Barton W. Evermann, Harold Heath, Olaf P. Jenkins, Walter K. Fisher, and Edward F. Ricketts as well as other later collectors. It is a most important one taxonomically as it formed the basis for a considerable part of the systematic work on the Cephalopoda published by S. S. Berry of Redlands, California, beginning in 1909, especially that relating to the cephalopods of western North America, the Hawaiian Islands, Japan, and the Kermadec Islands.

In spite of the age of many of the specimens in the Stanford Collection, the state of preservation, for the most part, is good. All of them have been re-curated following the California Academy's Department of Invertebrate Zoology standards and now are stacked systematically on collection-room shelves except for types, which are maintained in a separate collection.

As a total of 26 primary type specimens (8 holotypes, 16 paratypes, 2 syntypes) are included in the collection, it seems desirable to provide a list of them for the permanent reference of workers in this class of the Mollusca. In order to make this list as useful as possible, I have included 53 secondary types. These have been designated as hypotypes and represent specimens for which more or less complete measurements, or illustrations, or both, have been published in addition to other descriptive data and information relating to the particular species.

In addition to types and other Stanford specimens, which have been recorded in the literature, I have included for the record 2 paratypes of *Berryteuthis anonychus* (Pearcy & Voss, 1963), a hypotype of *Dosidicus gigas* (d'Orbigny, 1835), and a paratype of *Abrialopsis felis* McGowan & Okutani, 1968. These have been acquired from other sources. All type specimens listed are accessioned and numbered in the California Academy's Invertebrate Zoology Type Series.

TALMADGE (1967) mentions certain other cephalopod specimens in the main Invertebrate Zoology Collection and SMITH (1971) records the acquisition of 2 specimens of *Vampyroteuthis infernalis* Chun, 1903.

The following abbreviations are used:

- CASIZ California Academy of Sciences Department of Invertebrate Zoology, general collection, or separate Type Series. No accession numbers are assigned to specimens lots in the general collection as they are shelved systematically for convenient reference.
- SSB A series of author's register numbers maintained by Dr. S. S. Berry separately from accession numbers assigned to specimens in his private mollusk collection. SSB numbers represent specimens or specimen-lots seen and studied by him although not necessarily deposited in his own collection.
- USNM National Museum of Natural History, Division of Mollusks, Washington, D. C.

For quick inspection the primary types are listed below. These are treated in more detail, together with the secondary types and other specimens, in the subsequent systematic listing.

Family	Species	Type	CASIZ No.
COLEOIDEA			
Sepiidae			
	<i>Sepia formosana</i> Berry, 1912	Holotype	465
Sepiolidae			
	<i>Euprymna scolopes</i> Berry, 1913	Paratypes (3)	497 - 499
	<i>Rossia pacifica</i> Berry, 1911	Paratypes (2)	495, 496
	<i>Rossia pacifica diegensis</i> Berry, 1912	Syntypes (2)	457, 458
	<i>Sepiolina nipponensis</i> (Berry, 1911)	Holotype	459
TEUTHOIDEA			
Loliginidae			
	<i>Loligo opalescens</i> Berry, 1911	Holotype	547
	<i>Lolliguncula panamensis</i> Berry, 1911	Holotype	537
		Paratype	538
Cranchiidae			
	<i>Liocranchia globulus</i> Berry, 1909	Paratype	520
Enoploteuthidae			
	<i>Abraliopsis felis</i> McGowan & Okutani, 1968	Paratype	310
	<i>Watasenia scintillans</i> (Berry, 1911)	Holotype	453
Gonatidae			
	<i>Berryteuthis anonychus</i> (Pearcy & Voss, 1963)	Paratypes (2)	23, 24
	<i>Berryteuthis magister</i> (Berry, 1913)	Holotype	463
OCTOPODA			
Opisthoteuthidae			
	<i>Opisthoteuthis californiana</i> Berry, 1949	Holotype	548
Octopodidae			
	<i>Octopus dofleini apollyon</i> (Berry, 1912)	Paratype	461
	<i>Octopus californicus</i> (Berry, 1911)	Paratype	460
	<i>Octopus gilbertianus</i> (Berry, 1912)	Paratype	510
	<i>Octopus oliveri</i> (Berry, 1914)	Paratype	464
	<i>Octopus pricei</i> (Berry, 1911)	Holotype	454
		Paratypes (2)	455, 456

## CEPHALOPODA

## COLEOIDEA

## Sepioidea

## SEPIIDAE

*Sepia aculeata* d'Orbigny & Férussac, 1834. BERRY, 1912c: 418.

There were no hypotype specimens of this species in the Stanford collection. Others now in the CASIZ

collection include the following:

SSB No. 360. A large male from Tsuruga, Echizen, Japan; David Starr Jordan and John Otterbein Snyder, collectors; 1900

*Sepia esculenta* Hoyle, 1885. BERRY, 1912c: 418-419.

No hypotypes in the Stanford collection. The CASIZ Collection contains:

SSB No. 360. A single female from Tokyo, Japan; Jordan & Snyder, coll.; 1900

*Sepia formosana* Berry, 1912c: 420-422; plt. 9, fig. 7; text fig. 2.

Holotype. CASIZ No. 465 [SSB No. 361]. From



Formosa (Taiwan), Takao fishmarket; Hans Sauter, coll. (no. 5456), 12 January 1907. Based on a single specimen for which measurements are provided (pp. 421-422). OKUTANI (1967: 4) places *S. formosana* in synonymy of *S. pharaonis* Ehrenberg, 1831

*Sepia hoylei* Ortmann, 1888. BERRY, 1912c: 419-420.

No hypotypes in the Stanford Collection. Other specimen-lots now in the CASIZ Collection include:

SSB No. 356. From Nagasaki, Hizen, Japan; Jordan & Snyder, coll., 1900; 3 specimens from an original series of 4. SSB No. 379. From Wakanoura, Kii, Japan; Jordan & Snyder, coll., 1900; a single juvenile. OKUTANI (1967: 4) indicates *S. hoylei* to be a synonym of *S. esculenta* Hoyle, 1885

*Sepia kobiensis* Hoyle, 1885. BERRY, 1912c: 423.

No hypotypes in the Stanford Collection. Other material now in the CASIZ Collection, all from Japan, see Table 1.

*Sepia tokioensis* Ortmann, 1888. BERRY, 1912c: 423.

No hypotypes in Stanford Collection. A single lot, mentioned by Berry, is now in the CASIZ Collection:

SSB No. 377. 3 specimens from Aomori, Mutsu, Japan; Jordan & Snyder, coll., 1900

#### SEPIOLIDAE

*Euprymna morsei* (Verrill, 1881). BERRY, 1912c: 408-414; plt. 6, figs. 1, 2.

Hypotype. CASIZ No. 569 [SSB No. 290]. A measured male (p. 412) from an original series of 3 specimens collected at Takao, Formosa (Taiwan), by Hans Sauter

Hypotype. CASIZ No. 570 [SSB No. 291]. A measured female from Japan, specific locality not given, probably Jordan & Snyder coll., 1900

Hypotype. CASIZ No. 571 [SSB No. 292]. A measured female from a series of 3 taken at Onomichi, Bingo, Japan, by Jordan & Snyder, 1900

Hypotype. CASIZ No. 572 [SSB No. 294]. A measured male from a series of 3 taken in the Bay of Waka, Kii, Japan; Jordan & Snyder, coll., 1900

Other Stanford specimens now in the CASIZ Collection include:

SSB No. 289. 4 (2 males, 2 females) from Nagasaki, Japan; Jordan & Snyder, coll., 1900.

SSB No. 293. A single female from Wakanoura, Kii, Japan; Jordan & Snyder, coll., 1900

*Euprymna scolopes* Berry, 1913b: 564-565; 1914a: 312 to 315, plt. 4, figs. 5-8; text figs. 23-26

Paratypes (3). CASIZ Nos. 497, 498, 499 [SSB No. 323]. Sexes not determined. Measurements are pro-

vided (1914a: 314) for 2 males but it is not certain that either of these is included in the CASIZ paratypes. Locality for the paratypes (a total of 12) is from a surface haul off Kalaupapa Leper Settlement, Molokai, Hawaii; USS *Albatross* (Sta. 3905) coll., 30 April 1902. Holotype is stated to be in USNM (No. 214380 [SSB No. 320])

Hypotype. CASIZ No. 524 [SSB No. 312]. A measured female taken at the surface off Mokapu Islet, Molokai, Hawaii; USS *Albatross* (Sta. 3889) coll., 17 April 1902

Additional material see Table 1

*Heteroteuthis hawaiiensis* (Berry, 1909): 409, 418; text fig. 2 (as *Stephanoteuthis hawaiiensis*); 1914a: 319-321; plt. 50, figs. 3-8; text figs. 29, 30.

No type or other material has been found in the Stanford Collection. Type locality: trawled in 385 to 733 fms. off Kauai, Hawaii; USS *Albatross* (Sta. 3989) coll., 11 June 1902. Type lot: a single female. Holotype in USNM No. 214311. According to Berry the USS *Albatross* collected fragmentary specimens from 2 additional stations.

*Inioteuthis japonica* Verrill, 1881. BERRY, 1912c: 405-408; plt. 5, fig. 5.

Hypotype. CASIZ No. 508 [SSB No. 392]. A measured female (p. 407) from 42-45 fms. off Matsushima, Rikuzen, Japan; USS *Albatross* (Sta. 3770) coll., N 41° E, 4.7 mi. from Nagane Saki, off Honshu, 5 June 1900. This specimen was desiccated, even though in alcohol, on transfer from Stanford. An attempt is being made to re-hydrate it with a detergent.

Another specimen, a female [SSB No. 389] from Enoshima, Sagami, Japan, A. Owsten coll., is now in the CASIZ Collection.

*Rossia pacifica* Berry, 1911c: 591; 1912b: 290-293; plts. 51, 52; plt. 53, figs. 1-4; plt. 54, figs. 1, 5.

Paratypes (2). CASIZ Nos. 495, 496 [SSB No. 21]. From a type lot of 11 specimens. Type locality: Vicinity of Yes Yes Bay, Behm Canal, Alaska, in 39-45 fms.; USS *Albatross* (Sta. 4233, N 55° W,

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Editor's Note: While it is our policy to use the metric system exclusively for all data pertaining to dimensions of specimens, weight, distances, volumes, and while we use the international abbreviations, we do, however, cite the "old" measurements and designations in items that are quoted from earlier literature, from labels or from correspondence. We consider the various data on depths in the present article as quotations and, therefore, have not converted them to the metric equivalents.

1 mi. from Cannery Point) coll., 8 July 1903. Holotype stated to be in the USNM, No. 214323.

Hypotypes (2). CASIZ Nos. 505a, 505b [SSB No. 27]. 2 measured specimens (1 ♂, 1 ♀) in an original series of 11 (4 ♂♂, 7 ♀♀) from 26-27 fms., Monterey Bay, California; USS *Albatross* (Sta. 4492, N 54° W, 7 mi. from Santa Cruz Lighthouse) coll., 18 May 1904.

Additional material see Table 1

*Rossia pacifica diegensis* Berry, 1912b: 292, 294.

Syntypes (2). CASIZ Nos. 457, 458 [SSB No. 19]. Type locality: 120-131 fms., off San Diego, California; USS *Albatross* (Sta. 4356, N 82°30' E, 5.9 mi. from Point Loma Lighthouse) coll., 15 March 1904. The type lot (USNM 214376) stated to consist of 2 ♂♂ and 7 ♀♀, the primary types not designated by the author. Measurements of 1 ♂ and 1 ♀ are provided (p. 292) but the identity of these measured specimens is not indicated on the original labels.

*Stoloteuthis* [= *Sepiolina*] *nipponensis* Berry, 1911a: 39 to 41; 1 text fig.; 1912c: 414-417; plt. 5, figs. 1-4.

Holotype. CASIZ No. 459 [SSB No. 32]. Type locality: Suruga Bay, Japan; John O. Snyder, coll., 1900? A single ♂ for which measurements are provided (1912c: 416).

NAEF (1912) has made this species the type of a new genus, *Sepiolina*, a step with which later teuthologists concur.

## TEUTHOIDEA

### Myopsida

#### LOLIGINIDAE

*Loligo edulis* Hoyle, 1885. BERRY, 1912c: 398.

The Stanford Collection contained 3 lots of specimens that are now in the CASIZ Collection. These were collected in Japan in 1900 by David Starr Jordan and John O. Snyder; for details, see Table 1.

*Loligo kobeensis* Hoyle, 1885. BERRY, 1912c: 398-399.

Stanford specimens now in the CASIZ Collection consist of 3 lots; for details, see Table 1.

*Loligo opalescens* Berry, 1911c: 591-592; 1912b: 294-297; plt. 43, figs. 5-8; plt. 44, figs. 2-4; plt. 45; plt. 46, figs. 4, 5.

Holotype. CASIZ No. 547 [SSB No. 101]. Type locality: Puget Sound, Washington. Type lot: 3 specimens taken by shrimp fishermen. Holotype, a ♂; "cotype" [= paratype], a ♀, deposited in the USNM, number not given; a second "cotype",

a ♂, in the private collection of Dr. S. S. Berry, Redlands, California. Measurements of the primary types are provided (1912b: 296).

Hypotype. CASIZ No. 504 [SSB No. 65]. A measured immature specimen from 10 fms. (at anchor), off Pacific Beach, San Diego County, California; USS *Albatross* (Sta. 4324, N 24° E, 3.1 mi. from Point La Jolla) coll., 7 March 1904; one of a series of 6 specimens.

Additional material see Table 1

*Loligo tetradyamia* Ortmann, 1885. BERRY, 1912c: 399 to 401.

Although no illustrated or measured specimens of this species were in the Stanford Collection, we are reporting on 4 lots in the CASIZ Collection from Japan (see Table 1).

*Lolliguncula panamensis* Berry, 1911b: 100-105; plt. 6; text figs. 1-7.

Holotype. CASIZ No. 537 [SSB No. 58]. Type locality: Panama, collected during the Hopkins-Stanford Expedition to the Galápagos Islands, 1898-99, by R. E. Snodgrass and Edmund Heller. Type lot: 3 ♀♀, the holotype being one of 2 indicated as "types" (p. 105) by the author, the other not found in the Stanford Collection, which, if extant, should be designated as a paratype.

Paratype. CASIZ No. 538 [SSB No. 58]. A ♀ designated by the author as a "cotype."

Another specimens [SSB No. 57] from Guayaquil, Ecuador, collected by P. O. Simons, is now in the CASIZ Collection.

*Sepioteuthis arctipinnis* Gould, 1852. BERRY, 1914a: 308 to 310; plt. 54, fig. 1; text figs. 20-22.

Hypotype. CASIZ No. 573 [SSB No. 45]. A ♂, illustrated (*l.c.*, text figs. 21, 22) and measured (p. 310), from Honolulu, Oahu, Hawaii; D. S. Jordan and B. W. Evermann, coll., 1901.

Other Stanford specimens now in the CASIZ Collection include:

SSB No. 43. A juvenile from Honolulu Reef, Oahu, Hawaii, collected by Olaf P. Jenkins.

SSB No. 44. A ♀ from Honolulu, Hawaii, collected by Brandt.

*Sepioteuthis lessoniana* Lesson, 1830. BERRY, 1912c: 401 to 404; plt. 6, figs. 3, 5.

Hypotype. CASIZ No. 574 [SSB No. 341]. A measured ♂ from Pusan, Korea, D. S. Jordan, coll., 1911.

Hypotype. CASIZ No. 534 [SSB No. 36]. A measured ♂ from Wakanoura, Kii, Japan; Jordan & Snyder, coll., 1900.

Additional material see Table 1



## Oegopsida

## BRACHIOTEUTHIDAE

*Brachioteuthis (Tracheloteuthis) riisei* (Steenstrup, 1882).

BERRY, 1914a: 336-338; text fig. 37.

Hypotypes (2). CASIZ Nos. 589, 590 [SSB No. 280]. 2 of an original series of 7 specimens taken at the surface S of Lanai and W of Kahoolawe, Hawaii; USS *Albatross* (Sta. 3878) coll., 14 April 1902. BERRY (*op. cit.*: 337) provides measurements and illustrates one of them (fig. 37) but no information is available to indicate whether these particular specimens are correlated to the measurements or the illustration.

## CRANCHIIDAE

*Liocranchia globulus* Berry, 1909: 415-416; text fig. 9;

1914a: 346-348; plt. 53, figs. 2-4.

Paratype. CASIZ No. 520 [SSB No. 282]. Taken at the surface S of Lanai and W of Kahoolawe, Hawaii; USS *Albatross* (Sta. 3878, N 81°, E 51.2' from Molokini Islet) coll., 14 April 1902. Indicated as "cotype," sex not specified. Holotype in the USNM, No. 214315 [SSB No. 262], the type lot consisting of 2 specimens.

## ENOPLOTEUTHIDAE

*Abraliopsis felis* McGowan & Okutani, 1968: 72-79; pls. 9, 10; and distribution map.

Paratype. CASIZ No. 310. A ♂ from lat. 32°49' N, long. 117°43' W, collected by the Scripps Institution of Oceanography, August 1953, during the California Cooperative Oceanic Fisheries Investigations sponsored by the Marine Research Committee of the State of California and the National Science Foundation. This specimen is designated by the authors as Paratype No. 2.

*Abraliopsis felis* appears to be a common species of the California Current with a range extending from the Oregon coast to Bahía Sebastian Vizcaino, Baja California, with a center of distribution off the vicinity of San Diego, California. It is said to be more abundant 80 km or more offshore.

*Abraliopsis scintillans* Berry, 1911c: 93-94; 1912c: 425 to 432; pls. 7, 8, and 9, figs. 1-6; text figs. 3, 4.

Holotype. CASIZ No. 453 [SSB No. 147]. Type locality: Japan, probably off Misaki, Sagami. Type lot: 3 specimens, Alan Owston coll., indicated as "cotypes" numbered 1, 2, and 3 under SSB No.

147, all ♀♀ (1912c: 430). Presumably the specimen selected as the "type" [= holotype] and so labeled is SSB No. 147-1 with a mantle length of 59 mm and a total length of 132 mm.

Hypotype. CASIZ No. 507 [SSB No. 279]. A measured ♀ indicated as #6 in another series of 3 specimens under SSB No. 279, collected by Ishikawa at Misaki. The author states that one of the type lot (SSB No. 147-3) and one of the second series (SSB No. 279-5) were destroyed in dissection.

Later authors place this species in the genus *Watasenia* Ishikawa, 1913 (*e.g.*, ISHIKAWA, 1913; SASAKI, 1916: 94-95; and OKUTANI, 1967: 9), or treat *Watasenia* as a subgenus of *Abraliopsis* (McGOWAN & OKUTANI, 1968: 75).

## GONATIDAE

*Gonatus* [= *Berryteuthis*] *anonychus* Pearcy & Voss, 1963: 105-112; text figs. 1, 2; STASEK, 1966: 23.

Paratypes (2). CASIZ Nos. 23, 24. Collected under a night light about 80 km off the coast of Oregon at the 1800 m contour by the R/V *Acona* (Oregon State University) in lat. 42°49'30" N, long. 125°55'30" W, 10 July 1960. Specimens not sexed.

This species has been transferred to the genus *Berryteuthis* Naef, 1921, by ROPER, YOUNG & VOSS (1969: 6).

*Gonatus* [= *Berryteuthis*] *magister* Berry, 1913a: 76-77; 1912b: 310-312; plt. 52, figs. 1, 2; plt. 53, figs. 1, 2; plt. 54, figs. 1-4; plt. 55, figs. 1, 3-7.

Holotype. CASIZ No. 463 [SSB No. 88]. Type locality: Puget Sound area, Washington, collected by shrimp fishermen, 1909. Type designated by BERRY (1913a: 77), with measurements provided in an earlier report (1912b: 311) with accompanying illustrations (plt. 52, figs. 1, 2; plt. 53, fig. 1; plt. 54, figs. 1-3; plt. 55, figs. 1, 3, 4, 7).

Hypotype. CASIZ No. 525 [SSB No. 90]. A single specimen from near Victoria, British Columbia, Canada, taken from a salmon trap by J. B. Babcock, 1907. Measurements are provided for this specimen (BERRY, 1912b: 311) as well as illustrations (1912b: plt. 53, fig. 2; plt. 54, fig. 4; plt. 55, figs. 5, 6).

Both of the above specimens were discussed originally under the name *Gonatus fabricii* (Lichtenstein, 1818). In establishing the new genus *Berryteuthis*, NAEF (1921: 535) selected *Gonatus magister* Berry, 1913 as the type species (see also YOUNG, 1972: 6).

*Gonatus berryi* Naef, 1923. BERRY, 1912b: 308-312 (in part); plt. 52, fig. 3; plt. 55, fig. 2 (as *G. fabricii*); NAEF, 1923: 245; YOUNG, 1972: 46-49; table 2; plt. 15, fig. A; plt. 16, figs. A, C-I, L.

BERRY (1912b: 311) listed several specimens of *Gonatus* with a range from near Victoria, British Columbia, Canada, south to the Coronados Islands, off upper Baja California, Mexico, under the name *G. fabricii* (Lichtenstein, 1818). Naef selected one of these [SSB No. 98] as the holotype of *G. berryi* on the basis of Berry's illustrations cited above. It is stated to be a juvenile trawled at a depth of 309-469 fms. in Monterey Bay, California, by the USS *Albatross* (Sta. 4512), 23 May 1904. As this specimen has not been found in the Stanford Collection, it is presumed to be in Dr. Berry's private collection in Redlands, California. YOUNG (1972: 49) gives the known range of *G. berryi* as extending from latitudes 30° to 37° off southern California and Baja California.

*Gonatus "fabricii"* (Lichtenstein, 1818). BERRY, 1912b: 308-312; plt. 52, figs. 1-4; plt. 53, figs. 1-6; plt. 54, figs. 1-4; plt. 55, figs. 1-7.

All of the specimens illustrated by Berry, as indicated above, now are considered to represent species of *Gonatus* other than *G. fabricii* [SSB Nos. 88, 90, 98, 100]. Of the remaining specimens listed [SSB Nos. 89, 95, 96, 97, 99] only Nos. 97 and 99 have been found in the Stanford Collection and are now in the CASIZ Collection, as follows:

SSB No. 97. A single juvenile from Monterey Bay, California, trawled in 755-958 fms. by the USS *Albatross* (Sta. 4530), 27 May 1904.

SSB No. 99. A single juvenile trawled in 581-594 fms. off San Nicolas Island, California, by the USS *Albatross* (Sta. 4424), 13 April 1904.

Both of these specimens may also belong to different species.

*Gonatus onyx* Young, 1972: 43-46; plt. 13, fig. A; plt. 14, figs. A, C-I; plt. 17, fig. J; BERRY, 1912b: 308-312 (in part); plt. 52, fig. 4.

YOUNG (1972: 43) states that Berry's illustration of a tentacular club, as indicated above, probably refers to *Gonatus onyx*. This particular specimen [SSB No. 100] was trawled in 724-1000 fms. in Monterey Bay, California, by the USS *Albatross* (Sta. 4544), 2 June 1904. It has not been located in the Stanford Collection and presumably has been deposited in Dr. Berry's private collection.

#### OMMASTREPHIDAE

*Dosidicus gigas* (d'Orbigny, 1835). BERRY, 1911d: 304 to 306; plt. 20; plt. 21; text figs. 1-4; 1912b: 301-304; plt. 48, 49; text figs. 9-12 (illustrations copied from BERRY, 1911d).

Hypotype. CASIZ No. 519 [SSB No. 72]. A large, measured and illustrated specimen from Monterey Bay, California, preserved whole, the sex not indicated. Total length 1.245 m (49 ins.); mantle length 63.5 cm (25 ins.). Formerly this giant squid specimen was in the collection of the University of California, Berkeley.

*Sthenoteuthis* [= *Ommastrephes*] *bartramii* (Le Sueur, 1821. BERRY, 1912b: 298-300; plt. 47; plt. 50, figs. 4, 5; text figs. 7, 8.

Hypotype. CASIZ No. 535 [SSB No. 114]. A measured specimen BERRY, 1912b: 300) illustrated as indicated above, blown on board a vessel off Komondorski Island, Bering Sea.

Another Stanford specimen of this species now in the CASIZ Collection is a single one from Sunday Island, Kermadec Islands, New Zealand, collected (probably) by W. R. B. Oliver of Auckland, 1908? [SSB number not assigned.]

For a discussion of the taxonomy of the Ommastrephidae see Voss (1963: 132-133).

*Ommastrephes* [= *Notodarus*] *hawaiiensis* Berry, 1914a: 338-341; plt. 54, fig. 2; text figs. 38, 39.

Hypotype. CASIZ No. 527 [SSB No. 244]. Trawled in 257-312 fms., vicinity of Kauai, Hawaii; USS *Albatross* (Sta. 4132, S 27°, W 27' off Hanamaulu warehouse) coll., 1 August 1902. A measured specimen (p. 340), sex not indicated.

Holotype in USNM No. 214382 [SSB No. 243]. In his report on the R/V *Endeavor* cephalopods, BERRY (1918) considered his species should be transferred to the genus *Notodarus* Pfeffer, 1912, along with *Ommastrephes sloani* Gray, 1849, from New Zealand.

*Todarodes pacificus* Steenstrup, 1880. BERRY, 1912c: 433 to 437; plt. 6, fig. 4 (right third arm); as *Ommastrephes sloani* Gray, 1849

Hypotype. CASIZ No. 575 [SSB No. 256]. A measured specimen (p. 435, numbered "286" in error) from Tokyo, Japan; Jordan & Snyder, coll., 1900.

Hypotype. CASIZ No. 576 [SSB No. 257] Five



measured specimens in a series of a total of 9 from Hakodate, Oshima, Japan; Jordan & Snyder, coll., 1900.

Hypotype. CASIZ No. 577 [SSB No. 258]. One measured specimen from a lot of 2 from Hakodate, Oshima, Japan; Jordan & Snyder, coll., 1900.

Hypotype. CASIZ No. 578 [SSB No. 273]. A single measured specimen from Tomakomai, Iburi, Japan; John O. Snyder, coll., 1900.

Another specimen from the Stanford Collection now in the CASIZ Collection is SSB No. 259, collected by Jordan and Snyder at Misaki, Sagami, Japan, in 1900.

OKUTANI (1967: 12) places this species in the family Todarodidae, raising this taxon from the subfamily level (Voss, 1963: 128).

*Rhyncoteuthion* [= *Ommastrephes*] [alpha] BERRY, 1914a: 341-343; plt. 53, fig. 1.

Hypotype. CASIZ No. 518 [SSB No. 255]. Taken at the surface, eastern Pacific Ocean between the Hawaiian Islands and Laysan Island in lat. 21°13' N, long. 158°43' W; USS *Albatross* (Sta. 3926) coll., 10 May 1902. One of 5 specimens in the lot, measured (p. 342) and illustrated as cited above.

It now has been determined that all species in the genus *Ommastrephes* d'Orbigny, 1835, pass through a 'rhyncoteuthis' larval stage, recognized by a fusion of the tentacular arms to form a trunk-like proboscis. This is indicated by Berry in his discussion of the above form (see ROPER, YOUNG & VOSS, 1968: 10).

*Rhyncoteuthion* [= *Ommastrephes*] [beta] Berry, 1914a: 343.

A single specimen [SSB No. 246], taken at the surface between Oahu and Laysan Islands, Hawaii, by the USS *Albatross* (St. 3930, lat. 25°07' N; long. 170°50' W) 15 May 1902, has not been found in the Stanford Collection.

#### ONYCHOTEUTHIDAE

*Moroteuthis robusta* (Verrill, 1876). BERRY, 1912: 314 to 315.

There were no specimens of this species in the Stanford Collection. SMITH (1966) listed a total of 13 records for specimens collected off the west coast of North America in the period 1872 to 1962, 4 of which (numbers 8 and 11 to 13 in the list) are in the CASIZ Collection. Two of these are adults over 2.7 m in total length, preserved whole in formalin. Other occurrences of *Moroteuthis robusta* off the coast of California and Oregon have been reported by VAN HYNING & MAGILL (1964), PEARCY (1965: 261

to 262) and PHILIPPS (1966). YOUNG (1972: 38) says no specimens of this large squid were taken with a 3 m Isaacs Kidd mid-water trawl in any of the 445 mid-water tows made by the R/V *Velero IV* in the period 1960 to 1966 off southern California and Guadalupe Island, Mexico. Most of the offshore captures have been made by commercial trawlers operating at depths of 150 m or more.

The beaks of *Moroteuthis robusta* are illustrated by IVERSON & PINKAS (1971: fig. 38) as are those of most of the species of cephalopods occurring in California waters.

*Onychoteuthis banksii* (Leach, 1817). BERRY, 1914a: 322-323; text fig. 31.

Hypotype. CASIZ No. 526 [SSB No. 227]. A measured specimen from the vicinity of Laysan Island (pp. 86-87), illustrated as cited above; Max Schlimmer, coll.

*Onychoteuthis borealijaponica* Okada, 1927. BERRY, 1912a: 83-87; text figs. 44-46; 1913a: 77 [as *O. banksii* (Leach, 1817)]. YOUNG, 1972: 61-64; plt. 18, fig. A; plt. 19, figs. A-G.

Hypotype. CASIZ No. 542 [SSB No. 295]. A ♀, measured (BERRY, 1912a: 86-87) and illustrated (*ibid.*, figs. 44-46), taken with a seine off the entrance to Newport Bay, California, by J. H. Souder.

#### OCTOPODA

##### Cirromorpha

##### OPISTHOTEUTHIDAE

*Opisthoteuthis californiana* Berry, 1949: 23-26; 1952: 183-188; text figs. 1-5.

Holotype. CASIZ No. 548 [SSB No. 858]. A ♀ trawled in 188 fms. NW x W off Eureka Bar, Humboldt County, California; M/V *Andrew Jackson* (Capt. N. Franklin) coll., 25 April 1948.

A paratype (partially dissected ♀) is indicated as deposited in Dr. Berry's private collection [SSB No. 859]. Subsequently, BERRY (1955) described and illustrated a ♂ trawled in 280 fms. off Humboldt County, California. According to PHILLIPS (1966), collecting records for *Opisthoteuthis californiana* range from Monterey to Eureka, California, in depths of 344-580 m (188-317 fms.). The frequency and number of specimens collected appears to be in a direct ratio to the number of deep-water hauls made by commercial otter trawlers. The CASIZ Collection contains other specimens of this deep-water octopod.

## Incirrata

## OCTOPODIDAE

*Polypus* [= *Octopus*] *apollyon* Berry, 1912b: 280-284; plt. 35, fig. 3; plt. 36, fig. 1; plt. 39, fig. 4. Covered under the name *Polypus hongkongensis* (Hoyle, 1885).

**Paratype.** CASIZ No. 461 [SSB No. 145]. A measured ♂ from Uyak Bay, Kodiak Island, Alaska, taken in the course of a U. S. Fish Commission Salmon Investigation; USS *Albatross* coll. at one of a series of stations numbered 4287 to 4290, inclusive, 14 August 1903. This specimen, indicated on original labels as a "cotype," is designated herein as a paratype as it was collected with the holotype.

The holotype of *Polypus apollyon* was designated by BERRY (1912b: 284, footnote a) and deposited in the U. S. National Museum of Natural History (USNM No. 214 319). According to PICKFORD (1964: 28), it no longer can be found and is presumed lost. Thus, it is fortunate that a second specimen from the type lot collected in Uyak Bay, Alaska, has been located in the Stanford Collection even though it, too, was thought to be lost. Should the loss of the holotype be confirmed, the above designated paratype becomes available for selection as a lectotype of Berry's species. See discussion under the species designation *Polypus hongkongensis*, below. According to PICKFORD (1964: 51-52), the cold-water race of the Pacific giant octopus occurring in Bering Sea, Kamchatka, Okhotsk Sea, the Kurile Islands, and Alaska, should take the name *Octopus dofleini apollyon* (Berry, 1912).

*Polypus* [= *Octopus*] *areolatus* de Haan, 1838. BERRY, 1912c: 393-396; text fig. 1.

**Hypotype.** CASIZ No. 503 [SSB No. 148]. A measured ♂ (BERRY, 1912c: 395) from Tsuruga, Echizen, Japan, Jordan & Snyder, coll., 1900.

Additional material see Table 1

*Polypus* [= *Octopus*] cf. *P. areolatus* de Haan, 1838. BERRY, 1912c: 395-396

**Hypotype.** CASIZ No. 509 [SSB No. 332]. A single large measured ♂ (BERRY, 1912c: 396) collected at Tsuruga, Echizen, Japan, by Jordan & Snyder, in 1900 is designated as a hypotype herein because of the author's statement that it "is not only much larger than any other specimens above referred to *P. areolatus* but differs from them so conspicuously in several quite important characters that I feel considerable uncertainty as to whether it is specifically identical with them."

*Polypus* [= *Octopus*] *bimaculatus* (Verrill, 1883). BERRY, 1912b: 278-280; plt. 34; plt. 35, fig. 2; plt. 39, fig. 5.

**Hypotype.** CASIZ No. 528 [SSB No. 123]. A measured ♂ (BERRY, 1912b: 279) from San Diego, California; Edwin C. Starks, coll.

**Hypotype.** CASIZ No. 529 [SSB No. 103]. A measured ♀ from off La Jolla, California; William E. Ritter & William J. Raymond, coll. (San Diego Marine Biological Association), 1901. Beak dissected out of this specimen and illustrated (BERRY, 1912b: plt. 39, fig. 5), but not preserved with the remainder of the specimen.

**Hypotype.** CASIZ No. 543 [SSB No. 324]. BERRY 1912a: 87; text figs. 47, 48. A single specimen, sex not indicated, from Laguna Beach, Orange County, California, C. F. Baker (from original label) coll., 25 June 1911.

Syntypes of this species are said to be in the USNM (ROBSON, 1929: 79). Regarding other Stanford specimens, see Table 1.

No attempt has been made here to distinguish between *Octopus bimaculatus* and its sibling species *O. bimaculoides* Pickford & McConnaughey, 1949 (the so-called "mud-flat octopus" of southern California), this being left to the judgment of a specialist. According to these authors, CASIZ Hypotypes No. 528 and 529 [SSB Nos. 123 and 103] probably are *O. bimaculatus*.

*Polypus* [= *Octopus*] *californicus* Berry: 1911c: 590; 1912b: 286-288; plt. 35, figs. 6, 7; plt. 38; plt. 39, figs. 1, 2; plt. 40, figs. 2, 3; text fig. 3.

**Paratype.** CASIZ No. 460 [SSB No. 131]. Type locality: 191-192 fms., off La Jolla, San Diego County, California; USS *Albatross* (Sta. 4325, SE of Point La Jolla, off Soledad Hill, 4.4 mi) coll., 8 March 1904. A measured ♂ (BERRY, 1911c: 287). The type lot consists of 3 ♂♂, the holotype designated as a "type" by the author and deposited in the USNM (No. 214321). Berry does not indicate which of the 3 measured animals is the "type." The other 2 animals (indicated as "cotypes") are designated as paratypes herein, one of which is the above specimen. The remaining paratype presumably is in the private collection of Dr. Berry, Redlands, California.

**Hypotypes (2).** CASIZ Nos. 530, 531 [SSB No. 135]. Two measured ♂♂ from off San Diego, California, trawled in 193-227 fms.; USS *Albatross* (Sta. 4323, off Point La Jolla, 3.7 mi. SE of Soledad Hill) coll., 7 March, 1904.

**Hypotype.** CASIZ No. 532 [SSB No. 135]. A meas-



ured ♀ from 260-284 fms., off San Diego; USS *Albatross* (Sta. 4369, S 82° E, 10 mi. from Point Loma Lighthouse) coll., 16 March 1904.

Additional Stanford specimens now in the CASIZ Collection include 3 juveniles out of the original series of 4 [SSB No. 126] trawled in 130-158 fms. off San Diego; USS *Albatross* (Sta. 4365) coll., 16 March 1904.

*Polypus* [= *Octopus*] *fontanianus* d'Orbigny, 1835. BERRY, 1914a: 299.

The Stanford Collection contained a fairly large ♀ [SSB No. 355] collected in the Bay of Callao, Perú, by Admiral Beardsley. This is now in the CASIZ Collection.

*Polypus* [= *Octopus*] *gilbertianus* Berry, 1912b: 284-286; plt. 35, figs. 4, 5; plt. 36, fig. 2; plt. 37.

**Paratype.** CASIZ No. 510 [SSB No. 140]. A measured ♂ (BERRY, 1912b: 285), indicated as "co-type" by the author, is designated herein as a paratype. It comes from 188-131 fms. in Stephens Passage, Alaska; USS *Albatross* (Sta. 4253, vicinity of the Stikine River delta, N 53° E, 1.7 mi. from Thistle Ledge) coll., 14 July 1903. This specimen, thought to be lost by PICKFORD (1964: 32), fortunately was found in the Stanford Collection.

The holotype (indicated as a "type" by the author) was deposited in the USNM, No. 214320 [SSB No. 139]. Type locality: 41-134 fms., vicinity of Naha Bay, Behm Canal, southeast Alaska; USS *Albatross* (Sta. 4228) coll., 7 July 1903.

After a careful study of Berry's holotype and other available data, PICKFORD (1964: 32-33; 36-38, 49) concludes that *Octopus gilbertianus* should be considered a synonym of *O. dofleini apollyon* (Berry, 1912).

*Polypus* [= *Octopus*] *hongkongensis* (Hoyle, 1885). BERRY, 1912b: 280-284; text fig. 2.

Specimens described and listed under this species name by Dr. Berry, which were preserved in the Stanford Collection and now are in the CASIZ Collection are listed in Table 1, below.

Because all of the specimens listed under this name in Table 1 were identified initially as *Polypus hongkongensis*, and also because none of them was collected at the type locality of *Octopus apollyon* in Uyak Bay, Alaska, none of them can be designated objectively as hypotype even though Berry provides measurements for some of them. Furthermore, another species of *Octopus*, *O. rubescens* Berry, 1953, with a range at least as far north as Monterey Bay, must be taken in consideration.

For a discussion of the relationship between *Octopus hongkongensis* and *O. apollyon* see ROBSON (1929: 199

to 204) and especially PICKFORD (1964: 25-26, 28-30) for a commentary on the particular specimens reported upon by Berry, collected in the Pacific Northwest and off the coast of California. Robson assigns both species to the genus *Paroctopus* Naef, 1923 (syn. *Pseudoctopus* Grimpe, 1925), which is a genus no longer considered valid (PICKFORD & MCCONNAUGHEY, 1949: 57).

As a result of the detailed and painstaking analysis of data and other evidence relating to the giant octopus of the North Pacific, Pickford concludes that there are 3 distinguishable races, as follows:

*Octopus dofleini dofleini* (Wülker, 1910)

From the western Pacific (Japan and Korea)

*Octopus dofleini apollyon* (Berry, 1912)

From subarctic regions of the northern Pacific (Bering Sea, Kamchatka, Okhotsk Sea, Kurile Islands, and Alaska)

*Octopus dofleini martini* Pickford, 1964

From temperate eastern Pacific (Washington, ?California)

Presumably, the giant octopus occurring on the coast of Oregon and central California (and possibly farther south) should be identified as *Octopus dofleini martini*, at least provisionally until a comprehensive analytical study of populations inhabiting this extensive stretch of coastline can be made. In view of the misunderstanding resulting from identifications of the Pacific giant octopus as *O. hongkongensis*, great credit is due Dr. Pickford for her authoritative determination that this is a Japanese species distinct from *O. dofleini*. It should be noted here also that she relegates *Polypus gilbertianus* Berry, 1912 to the synonymy of *O. dofleini apollyon* (Berry, 1912).

*Polypus* [= *Octopus*] *hoylei* Berry, 1919: 407-408; text fig. 1; 1914a: 296-298; plt. 47, fig. 1; plt. 48, figs. 2-4; plt. 55, fig. 1; text fig. 15.

**Hypotype.** CASIZ No. 462 [SSB No. 176]. A measured ♂ (BERRY, 1914a: 298) from 283-309 fms. off Kauai, Hawaii; USS *Albatross* (Sta. 4130, N 61°; W 2.2' from Hanamaulu warehouse) coll., 1 August 1902.

The holotype (indicated as "type" by the author) deposited in the USNM, No. 214310 [SSB No. 166]. Type locality: Hawaiian Islands; the specific locality is unknown because of the loss of the original locality label.

*Polypus* [= *Octopus*] *leioderma* Berry, 1911c: 590-591; 1912b: 288-289; plt. 35, fig. 1; plt. 40, figs. 4, 5.

The Stanford Collection contained no type specimens of this species. Holotype, a ♀ in the USNM, No. 214322 [SSB No. 137]. Type locality: 106-112 fms. in Shelikof Strait, Alaska; USS *Albatross* (Sta. 4293) coll., 15 August

1903. Another specimen in the Stanford Collection and now in the CASIZ Collection, listed by BERRY (1912b: 289) [SSB No. 173], was trawled in 110-170 fms. in the Gulf of Georgia, British Columbia, Canada; USS *Albatross* (Sta. 4194) coll., 20 June 1903. It is a female.

*Polypus* [= *Octopus*] *macropus* (Risso, 1826). BERRY, 1912c: 389-390.

Hypotype. CASIZ No. 579 [SSB No. 325]. A measured ♂ (BERRY, 1912c: 390) from Aomori, Mutsu, Japan; Jordan & Snyder, coll., 1900.

Hypotype. CASIZ No. 580 [SSB No. 327]. A measured ♂ from an original series of 3 specimens (1 ♂, 2 ♀) from Matsushima, Rikuzen, Japan; Jordan & Snyder, coll., 1900.

Additional material see Table 1

*Polypus* [= *Octopus*] *marmoratus* (Hoyle, 1885). BERRY, 1914a: 291-293; plt. 45; plt. 48, fig. 6; text fig. 13.

Hypotype. CASIZ No. 539 [SSB No. 174]. A measured ♂ (BERRY, 1914a: 292) from the Honolulu fishmarket, Oahu, Hawaii; collected in 1889 (or 1901); illustrated in BERRY, *op. cit.*, plt. 45 (whole animal) and on plt. 48, fig. 6 (hectocotylized portion of third right arm).

Hypotype. CASIZ No. 533 [SSB No. 175]. A measured ♂ from Honolulu, Jordan & Evermann, coll., 1901. BERRY, 1914a, text figure 13 shows the funnel organ.

Another Stanford specimen, now in the CASIZ Collection, is a juvenile from Henshaw's Road, Hilo, Hawaii [SSB No. 181].

According to ROBSON (1929: 94-98) *Octopus marmoratus* is conspecific with *O. cyaneus* Gray, 1849, and should be considered as a synonym of this latter species. Syntypes of *O. cyaneus* are stated to be in the British Museum (Natural History), London.

*Polypus* [= *Octopus*] *oliveri* Berry, 1914b: 136-137; plt. 6, fig. 2.

Paratype. CASIZ No. 464 [SSB No. 405]. A measured ♀ (BERRY, 1914b: 137) designated as a "cotype" by the author, was collected with the holotype off Sunday Island, Kermadec Islands, New Zealand, by W. R. B. Oliver in 1908.

The holotype, designated as "type" by the author, has a total length of 175 mm, the paratype, somewhat larger, being 190 mm, but less well preserved. ROBSON (1929: 100) states the holotype possibly may be deposited in the Dominion Museum, Wellington, New Zealand.

*Polypus* [= *Octopus*] *ornatus* (Gould, 1852). BERRY, 1914b: 294-296; plt. 46, text fig. 14.

Hypotype. CASIZ No. 506 [SSB No. 179]. The

smaller of 2 measured ♂ ♂ (BERRY, 1914b: 295) has a total length of 263 mm, is from Honolulu reef, Oahu, Hawaii; USS *Albatross* (Sta. no. not indicated), coll., 1902.

Another Stanford specimen now in the CASIZ Collection is a juvenile, also from Honolulu Reef, collected by O. P. Jenkins, 1889 [SSB No. 186].

*Polypus* [= *Octopus*] *pricei* Berry, 1911d: 303-304 (as *Polypus* sp., young); 1913a: 73-75; text fig. 2 (inner aspect of right ventral arm).

Holotype. CASIZ No. 454 [SSB No. 189]. A measured specimen (BERRY, 1913a: 74), sex not specified, from off Point Pinos, Monterey Bay, California, in the stomach of a salmon; C. H. Gilbert, coll. 23 June 1911. One of 4 specimens.

Paratypes (2). CASIZ Nos. 455, 456 [SSB No. 189]. Part of the type lot.

BERRY (1913a) states the type lot is composed of a "type" and "cotypes," herein designated as holotype and paratypes, respectively. Measurements for one of the paratypes are provided but there is no published or label information that indicates to which one of the 3 specimens these apply. The third paratype has not turned up in the Stanford Collection and presumably is deposited in the Berry Collection, Redlands, California.

*Octopus rubescens* Berry 1953. BERRY, 1912b: 281-284; plt. 39, fig. 3 (as *Polypus hongkongensis*); 1953: 51-52.

Hypotype. CASIZ No. 568 [SSB No. 134]. A measured ♂ (one of 2 specimens, the other an unmeasured ♀) trawled in 75-134 fms. off San Diego, California; USS *Albatross* (Sta. 4349, NE 6.5 mi. from Point Loma Lighthouse) coll., 12 March 1904. This specimen was included with others in Berry's discussion of *Polypus hongkongensis*, but was assigned later by him to *Octopus rubescens* (BERRY 1953: 52).

Type locality of *Octopus rubescens*: 7-17 fms. off the east and south shores of South Coronado Island, Baja California, Mexico; Carl L. Hubbs, J. W. Sefton, *et al.*, collectors, on the R/V *E. W. Scripps* and the R/V *Orca*, 1948-1949. Holotype [SSB No. 969] and 18 paratypes [SSB Nos. 968, 970, 972, 976] in the Berry Collection.

In discussing the published measurements of several of Berry's California specimens, initially identified as *Polypus hongkongensis*, PICKFORD (1964: 25) concluded that 2 specimen-lots, collected by Harold Heath at Pacific Grove, Monterey Bay, California, might be assigned to *Octopus rubescens*. These are SSB No. 146, 1 ♂ and other of indeterminate sex; and SSB No. 153, 1 ♂ and 2 ♀. They are now in the CASIZ Collection. In addi-



tion, she considered a ♂ [SSB No. 81] from 15-18 fms., off the Coronado Islands, Baja California, Mexico, collected by Ritter and Raymond (San Diego Marine Biological Association, Sta. LVIII, Haul 1, 1901), might be identified as *O. rubescens* also. This particular specimen, however, was not found in the Stanford Collection.

*Polypus* [= *Octopus*] *vulgaris* (Cuvier, 1797). BERRY, 1912c: 386-388.

Hypotype. CASIZ No. 540 [SSB No. 337]. A measured ♂ (BERRY, 1912c: 387) from Fusan [=Pusan], Korea; D. S. Jordan, coll., 1911; one of 2 specimens, both ♂♂. As this measured animal is 355 mm in total length to tip of arms (mantle length, dorsal, 71 mm), the other having a total length of 610 mm, it seems probable it is the one herein designated as a hypotype.

Hypotype. CASIZ No. 541 [SSB No. 339]. A measured ♂ from Tsuruga, Echizen, Japan; Jordan & Snyder, coll., 1900.

Additional material see Table 1

*Polypus* [= *Octopus*] *α* (young) BERRY, 1909: 418 (listed only); 1914a: 299-300; text fig. 16.

Hypotype. CASIZ No. 523 [SSB No. 192]. A measured juvenile (BERRY, 1914a: 299) taken with a night-light off the south coast of Molokai, Hawaii; USS *Albatross* (Sta. 3843, N 68°45' W, 2.8 mi. from Lae-o Ka Laau Lighthouse) coll., 4 April 1902. One of 2 specimens collected.

BERRY (1914a: 300) believes this form may be the young of *Octopus ornatus* Gould, 1852.

*Polypus* [= *Octopus*] *β* (young) BERRY, 1909: 418 (listed only); 1914a: 300-301; plt. 48, figs. 7, 8.

Hypotype. CASIZ No. 584 [SSB No. 195]. An illustrated specimen (1 of 2 juveniles, BERRY, 1914a: plt. 48, fig. 8) taken at the surface off the south coast of Oahu, Hawaii; USS *Albatross* (Sta. 3921) coll., 6 May 1902.

Other Stanford specimens now in the CASIZ Collection include: SSB No. 184, a small animal from shore on Honolulu Reef, Oahu, Hawaii; and SSB No. 201, another small specimen taken at the surface off Diamond Head, Oahu, Hawaii, by USS *Albatross* (Sta. 3907), 5 May 1902.

*Polypus* [= *Octopus*] *γ* (young) BERRY, 1909: 418 (listed only); 1914a: 301-303; text figs. 17, 18.

Hypotype. CASIZ No. 521 [SSB No. 180]. A measured ♀ (BERRY, 1914a: 302), illustrated as cited above, taken from shore at Honolulu, Oahu, Hawaii; Dr. Wood, coll., 1898.

Hypotype. CASIZ No. 522 [SSB No. 188]. A meas-

ured ♂ from Honolulu Reef, O. P. Jenkins, coll., 1889.

Berry says this form is not the young of *Octopus ornatus* Gould, 1852, nor of *O. hoylei* (Berry, 1909), and differs in a number of characters from *O. marmoratus* Hoyle, 1885.

*Polypus* [= *Octopus*] *δ* (young) BERRY, 1914a: 303.

A single, badly mutilated juvenile specimen taken on the reef at Honolulu by Dr. Olaf P. Jenkins is stated to be in the Stanford Collection, but has not been found. It is SSB No. 186, which Dr. Berry says "recalls *P. ornatus* but in most ways the aspect is notably different."

*Polypus* sp. Young. BERRY, 1912c: 391-392.

SSB No. 344, now in the CASIZ Collection, includes 4 small specimens, 3 of them measured, collected by Snyder and Sindo at Taneshima Island, Japan. All are stated to be males. Dr. Berry provides the following comments:

"These specimens in certain ways suggest the *P. globosus* of Appelöf, but the order of the arms is decidedly different, and the hectocotylus, though very much smaller, is of a similar type to that prevailing in the *hongkongensis* group. The possibility has not been overlooked that they may be young *P. dofleini*, but here again the arm formulae fail to coincide."

*Scaevargus patagiatus* Berry, 1913b: 564; 1914a: 305-307; plt. 47, figs. 2, 3; plt. 48, fig. 1; text fig. 19.

Hypotype. CASIZ No. 501 [SSB No. 207]. A measured ♀ (BERRY, 1914a: 306) from 132-141 fms., Pailolo Channel between Maui and Molokai, Hawaii; USS *Albatross* (Sta. 4103, N 32°45' E, 6.7 mi. from Mokuhooniki Islet) coll., 23 July, 1902. One of a lot of 3 specimens (1 ♂, 2 ♀♀), all measured.

Hypotype. CASIZ No. 502 [SSB No. 206]. A measured ♂ from 128-138 fms. in the Pailolo Channel; USS *Albatross* (Sta. 3858, N 35° E, 8.1 mi. off Mokuhooniki Islet) coll., 9 April 1902.

The holotype, a male, is stated to be in the USNM, No. 214379 [SSB No. 204]. Type locality: In 143-178 fms. off Puniawa Point, Maui, Hawaii; USS *Albatross* (Sta. 4079) coll., 21 July 1902.

#### OCYTHOIDAE

*Ocythoe tuberculata* Rafinesque, 1814. BERRY, 1916b: 1-4; 1 text fig.; 1955: 177-181; text fig. 2.

Hypotype. CASIZ No. 536 [SSB No. 453]. A large, measured ♀ (total length 440; body length, 160 mm), illustrated as cited, from near Avalon, Santa

Catalina Island, California; collected by W. E. Hamilton, summer of 1915.

For more recent records of this species, see YOUNG (1972: 92-93).

#### TREMOCTOPODIDAE

*Tremoctopus violaceus* delle Chiaje, 1829. BERRY, 1914a: 281-286; plt. 49, figs. 3, 4; text figs. 8-10.

Hypotypes (2). CASIZ No. 581, 582 [SSB No. 218]. 1 ♂ and 1 ♀, both measured (BERRY, 1914a: 285) from an original lot of 5 specimens (2 ♂ ♂, 3 ♀ ♀) taken at the surface off Molokini Islet, Kahoolawe, Hawaii; USS *Albatross* (Sta. 3878) coll., 14 April 1902.

Hypotype. CASIZ No. 583 [SSB No. 221]. A single

measured ♀ from an original lot of 3 specimens (1 ♂, 2 ♀ ♀) taken at the surface between Oahu, Hawaii, and Laysan Island in lat. 25°07', long. 170°50'W; USS *Albatross* (Sta. 3930) coll., 15 May 1902. As measurements are provided for both females in the lot, the one designated as a hypotype must be selected on the basis of agreement with the specimen having a total length of 64+ mm, or the other having a total length of 51+ mm. Also, one of these females is illustrated (BERRY, 1914a: text figs. 8, 9), but which is not specified on original labels.

Another specimen of this species now in the CASIZ Collection is a male [SSB No. 220] also taken at the surface between Oahu and Laysan Island by the USS *Albatross* (Sta. 3829, lat. 23°19'N, long. 166°54'W), 13 May 1902.

Table 1

<i>Sepia kobiensis</i> (Hoyle, 1885)			
349 <sup>1</sup>	Nagasaki	Jordan & Snyder, 1900	10 <sup>2</sup>
350	Off Honshu	USS <i>Albatross</i> (Sta. 3741), 1906	1
351	Off Honshu	USS <i>Albatross</i> (Sta. 3713), 1906	5
352	Off Honshu	USS <i>Albatross</i> (Sta. 3708), 1906	3
353	Off Honshu	USS <i>Albatross</i> (Sta. 3714), 1906	1
354	Hakodate Bay	USS <i>Albatross</i> (Sta. 3657), 1906	1
357 <sup>1</sup>	Hakodate	Jordan & Snyder, 1900	1
358	Off Hokkaido	USS <i>Albatross</i> (Sta. 3729), 1906	1
359 <sup>1</sup>	Hakodate	Jordan & Snyder, 1900	3 <sup>3</sup>
362	Off Hokkaido	USS <i>Albatross</i> (Sta. ?), 1906	1
378	Off Honshu	USS <i>Albatross</i> (Sta. ?), 1906	1
<i>Euprymna scolopes</i> Berry, 1913			
296	Shore at Honolulu		2 juveniles
297	Shore at Honolulu		1 male, 1 female
299	Shore at Honolulu		4 males, 5 females
306	52 - 56 fms. off Maui		1 female
307	Surface, off Molokai		2 juveniles
315	127 - 128 fms. off Molokai		1 female
<i>Rossia pacifica</i> Berry, 1911			
55	Puget Sound, Washington		12 (males & females)
24	Off mouth of Salinas River, Monterey Bay, California		3 <sup>4</sup>
2	20 - 30 fms., Monterey Bay, California		2 females
<i>Loligo edulis</i> Hoyle, 1885			
372	Bay of Waka, Kii		2 males
373	Aomori, Mutsu		30 <sup>+</sup> juveniles
374	Aomori, Mutsu		4 juveniles



*Loligo kobiensis* Hoyle, 1885

365	Onomichi, Bingo, Japan	1 male, 1 female
366	Nagasaki, Hizen, Japan	2 females
396	Osaka, Japan	1 female

*Loligo opalescens* Berry, 1911

59	Off Pacific Grove, California	3 males, 3 females
66	San Diego, California	2 juveniles
67	San Diego, California	2 juveniles
68	20 - 30 fms., off mouth of Salinas River, Monterey Bay, California	3 juveniles
69	Monterey Bay, California	3 <sup>5</sup>
107	Deception Pass, Washington	1 male

*Loligo tetradymania* Ortmann, 1885

369	Same, Mutsu	2 males
370	Tokyo	6 males, 8 females
371	Kawatana, Hizen	1 male, 1 female, 5 juveniles
393	Okayama, Hizen	1 male

*Sepioteuthis lessoniana* Lesson, 1830

35	Tsuruga, Echizen, Japan	1 female
37	Misaki, Sagami, Japan	2 juveniles <sup>6</sup>
38	Nagasaki, Hizen, Japan	4 juveniles
40	Misaki, Sagami, Japan	9 juveniles
41	Bay of Waka, Kii, Japan	4 juveniles
342	Pusan, Korea	5 of both sexes <sup>7</sup>
39	Apia, Samoa	3 specimens

*Polypus areolatus* de Haan, 1838

329	Aomori, Mutsu	2 males
330	Bay of Waka, Kii, Japan	1 female
347	Tokyo, Japan	1 male
348	Tokyo fishmarket	1 juvenile

*Polypus bimaculatus* (Verrill, 1883)

102	Off La Jolla, San Diego County, California	2 females
104	Off La Jolla, San Diego County, California	1 female
121	San Diego, California	3 (2 juveniles)
122	San Diego, California	1 (not sexed)
124	San Diego, California	4 juveniles
Not assigned	Mazatlán, Sinaloa, Mexico	1 (not sexed)

*Polypus hongkongensis* (Hoyle, 1885)

154	Karluk, Kodiak Island, Alaska	3 juv. female
144 <sup>8</sup>	Port Townsend, Washington	1 juv. female
149	Port Townsend, Washington	1 juv. female
162 <sup>8</sup>	Port Townsend, Washington	2 males, 1 female
214	Crescent City, Del Norte County, California	1 juvenile
151 <sup>8</sup>	Point Reyes, Marin County, California	1 male
143 <sup>8</sup>	Monterey Bay, California	1 female, 2 juveniles
150	Monterey Bay, California	1 juv. female
155	Monterey Bay, California	1 juv. female
158 <sup>8</sup>	Monterey Bay, California	1 male

159	Monterey Bay, California	1 juv. female
160	Monterey Bay, California	4 juv. females
164 <sup>8</sup>	Monterey Bay, California	4 juveniles
87	Off San Diego, California	2 juveniles
152	Off San Diego, California	1 female
<i>Polypus macropus</i> (Risso, 1826)		
326	Bay of Waka, Kii, Japan	1 female
328	Hakodate, Oshima, Japan	1 male
346	Misaki, Sagami, Japan	1 female
<i>Polypus vulgaris</i> (Cuvier, 1797)		
334	Pusan, Korea	1 female
336	Misaki, Sagami, Japan	1 male
338	Tsuruga, Echizen, Japan	3 females
345	Misaki, Sagami, Japan	1 female

- <sup>1</sup> listed, BERRY, 1912c: 423; <sup>2</sup> of an original series of 13  
<sup>3</sup> of an original lot of 4; <sup>4</sup> of an original lot of 7 (2 ♂, 5 ♀)  
<sup>5</sup> of an original lot of 24; <sup>6</sup> of an original lot of 3  
<sup>7</sup> of an original lot of 6; <sup>8</sup> measured specimens

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